10/549529
JC20 Rec'd PCT/PTO 16 SEP 2005

PCT/JP2003/012921
WO 2004/084739 A1

REPLACEMENT SHEETS

- Amendment filed on March 26, 2004
pursuant to Article 34 PCT -

Disclosure of the Invention

In order to solve the problems noted above, a wire for insertion into intravital tracts according to the aspect of the present invention stated in claim 1 uses as a principal wire flexible filaments to be inserted into an intravital tract, the tip of that principal wire being provided with a capture filter, the wire for insertion into intravital tracts being characterized in that the capture filter comprises a filter body consisting of a plurality of support wires all of whose nearer ends are spliced to the principal wire and radially extending in the direction toward the farther end and in the direction toward the outer diameter and a meshed material linked to the plurality of support wires and knit in such a shape that the face toward the support wires form a concave, the ends of the plurality of filaments knitted into a mesh form to constitute the filter body are divided into a plurality of sets, and the ends of filaments of each set are twined to form each of the support wires, and the filaments constituting the plurality of support wires and filter body have an elastic force to form the shape.

According to the invention, by configuring the filter body of a meshed material, obstruction of the stream within the intravital tract is avoided.

Also, since it can be folded correspondingly smaller to the absence of the membrane unlike in the conventional one, it can be applied to tracts thinner in diameter.

Furthermore, the presence of the elastic force to form the aforementioned shape, no other mechanism to achieve swelling into the intended shape is needed, and the configuration is correspondingly simplified to make possible more compact folding.

Also, filaments constituting the support wires and filaments constituting the filter body are integrated to dispense processing to separately join the support wires and the filter body, with the result that no swollen nodal part is formed in any of the joined portions, making possible folding to a correspondingly thinner diameter.

Next, according to the aspect of the invention stated in claim 2, in the configuration stated in claim 1, the mesh size of the meshed material decreases toward the central part of the concave, which is the farther end direction.

Since the stream of fluid in a tract is the highest in flow rate in the central part of the tract, embolic material floating in the fluid is captured, first from the concave central position of the filter body consisting of a meshed material. Therefore, by setting the meshes of the concave central position of the filter body smaller than anywhere else as according to the invention under the present application, the stream of the fluid can be more easily ensured by the meshes of the outer circumference of the filter while securely capturing small pieces of embolic material.

Since the meshes of the meshed material here are so inclined as to flatly lie relative to the stream of the fluid, more so toward the outer circumference whether the mesh openings are larger in relative terms, the aperture is equal to finer meshes in relative terms in a sectional view orthogonal to the stream of the fluid.

Next, according to the aspect of the invention stated in claim 3, in the configuration stated in claim 1 or claim

2, the filaments constituting the plurality of support wires and filter body consist of a shape-memory alloy.

The composition using a shape-memory alloy makes more secure restorability of the originally intended shape even after staying in a folded state for a long time.

More preferably, it should be a superelastic alloy out of shape-memory alloys.

Next, according to the aspect of the invention stated in claim 5, in the configuration stated in any one of claim 1 through claim 4, there is provided with a guide wire joined to the convex side of the filter body and extending in the farther end direction.

The presence of the guide wire facilitates guidance of the capture filter swelling in the radial direction along the intravital tract.

Incidentally, it is preferable for the guide wire to be more flexible in the radial direction than the principal wire. While the principal wire is required to be just sufficiently rigid to permit feeding in the axial direction, it is preferable for the guide wire to have flexibility to permit trackability in the extending direction of the tract.

AMENDED CLAIMS

UNDER ART. 34 PCT

1. (Amended) A wire for insertion into intravital tracts using as a principal wire flexible filaments to be inserted into an intravital tract, the tip of that principal wire being provided with a capture filter,

the wire for insertion into intravital tracts being characterized in that the capture filter comprises a filter body consisting of a plurality of support wires all of whose nearer ends are spliced to the principal wire and radially extending in the direction toward the farther end and in the direction toward the outer diameter and a meshed material linked to the plurality of support wires and knit in such a shape that the face toward the support wires form a concave,

the ends of the plurality of filaments knitted into a mesh form to constitute the filter body are divided into a plurality of sets, and the ends of filaments of each set are twined to form each of the support wires, and

the filaments constituting the plurality of support wires and filter body have an elastic force to form the shape.

2. The wire for insertion into intravital tracts according to claim 1, characterized in that:

the mesh size of the meshed material decreases toward the central part of the concave, which is the farther end direction.

3. The wire for insertion into intravital tracts according to claim 1 or claim 2, characterized in that:

the filaments constituting the plurality of support wires and filter body consist of a shape-memory alloy.

4. (Cancelled)

5. The wire for insertion into intravital tracts according to any one of claims 1 through 4, characterized in that:

it is provided with a guide wire joined to the convex side of the filter body and extending in the farther end direction.

6. The wire for insertion into intravital tracts according to claim 5, characterized in that:

the central part of the filter body is joined to the nearer end side of a first tubular piece and fixed to the first tubular piece in a state in which the nearer end of the guide wire is inserted into the farther side of that first tubular piece.

7. The wire for insertion into intravital tracts according to any one of claims 1 through 6, characterized in that:

the nearer ends of the plurality of support wires are all fixed to a second tubular piece in a state in which they are inserted into the farther side of the second tubular piece, and fixed to the second tubular piece in a state in which the tip of the principal wire is inserted into the nearer side of the second tubular piece.